



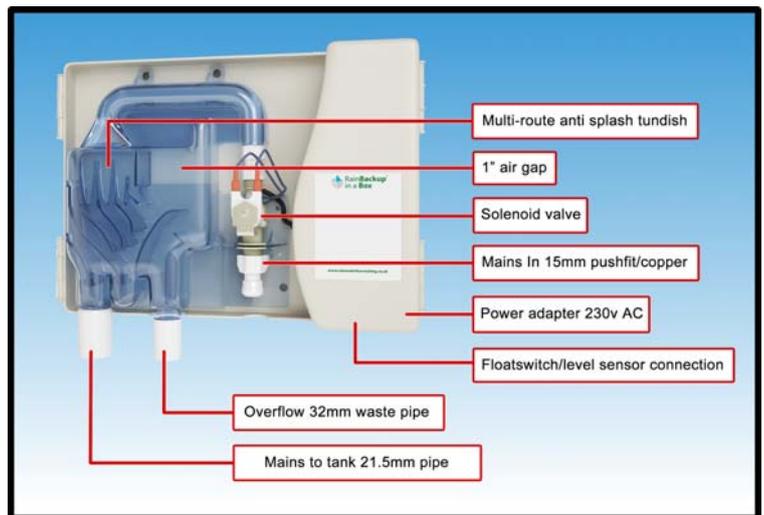
# RainBackup in a Box<sup>®</sup>

## Plug-and-play mains water backup for direct feed rainwater harvesting systems

Mains backup unit to ensure direct feed rainwater harvesting systems have sufficient water in times of low rainfall.

Toilet flushing, clothes washing and any outdoor use of water can be serviced by the submersible water pump inside a tank.

In low rainfall the supplied float switch will detect if the system is empty. This signals an electrically activated solenoid to open in the control unit, allowing mains water to flow into the system. When the float rises the solenoid is shut. This means the tank is only partially filled- leaving a bulk of the storage tank remains empty ready to admit the water from the next rain shower.



**WRAS**  
#1306031 APPROVED  
PRODUCT

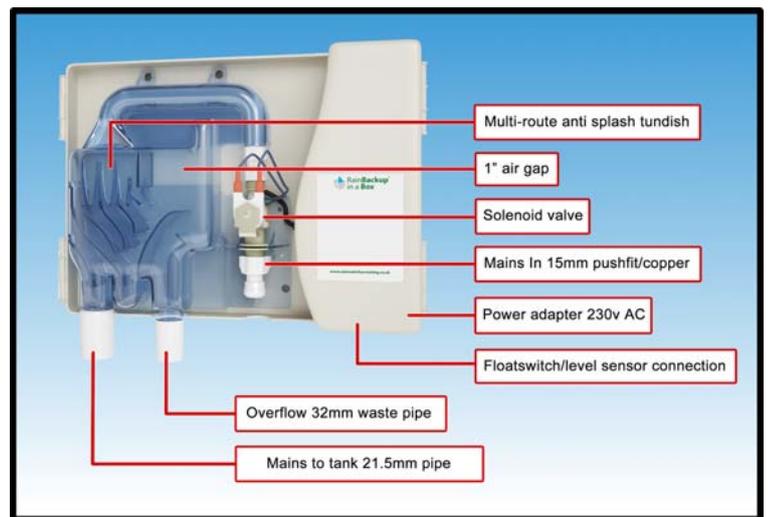
U.K. Building Regulations require that rainwater cannot possibly flow back into the mains water supply. For this reason all mains backup devices must have an air gap where the mains water flows into the rainwater tank. The simplest way to do this is for the mains water to flow through open air into an inverted cup-shaped device called a tundish. The Rain Backup in a Box (Product ID RWH-BUB01) features a multi-route anti-splash "tundish" and overflow incorporated into one transparent section. It is housed with the solenoid in an off-white plastic cabinet 325 L x 260 H x 95 D millimetres. The float switch is provided with around 15 metres of cable. Please contact your supplier if you require longer cable

# Installation Instructions

The **Rain Backup in a Box**<sup>®</sup> is fitted inside the building where the occupiers can, when rainwater has run out, hear any mains water running from the solenoid valve. Wall mounting is with screws through holes in the back of the cabinet.

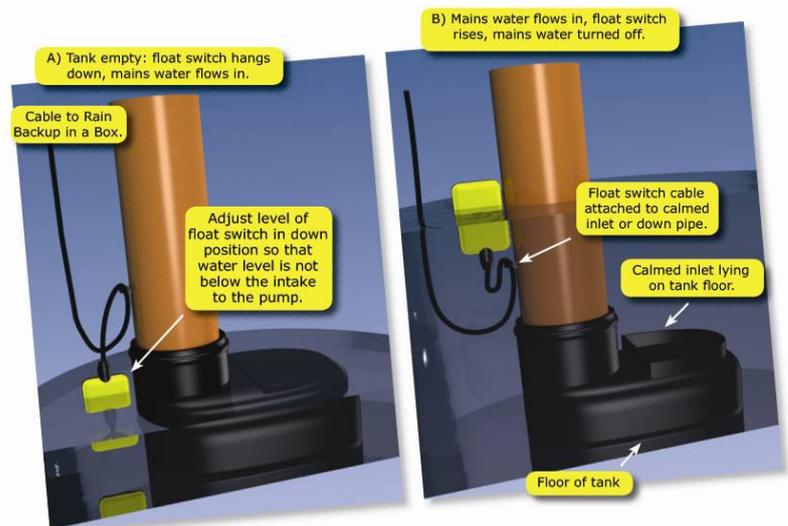
These instructions assume the separate installation of a rainwater system in the building with rainwater flowing off the roofs through a filter into an underground storage tank and a pump to take the rainwater through a separate pipe network for toilets, washing machine and outdoor use.

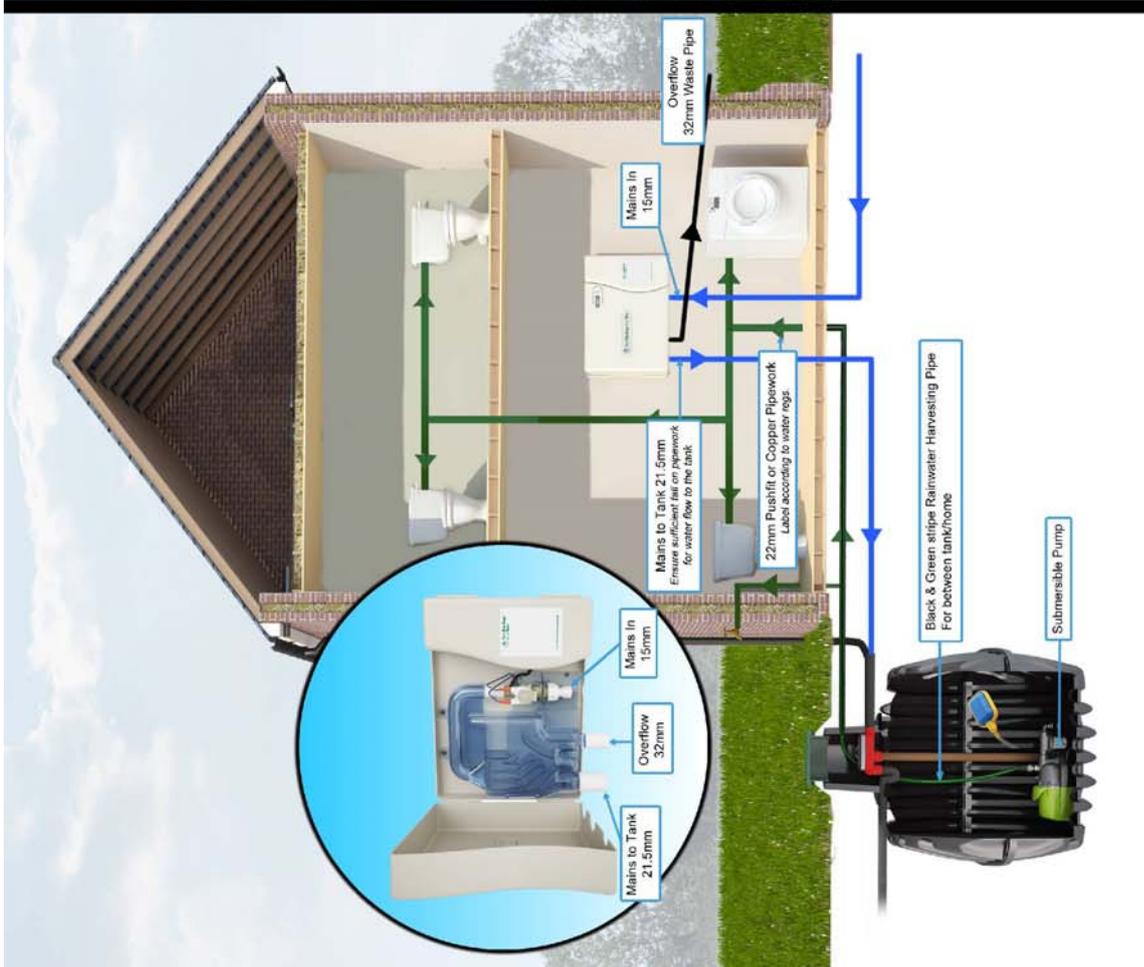
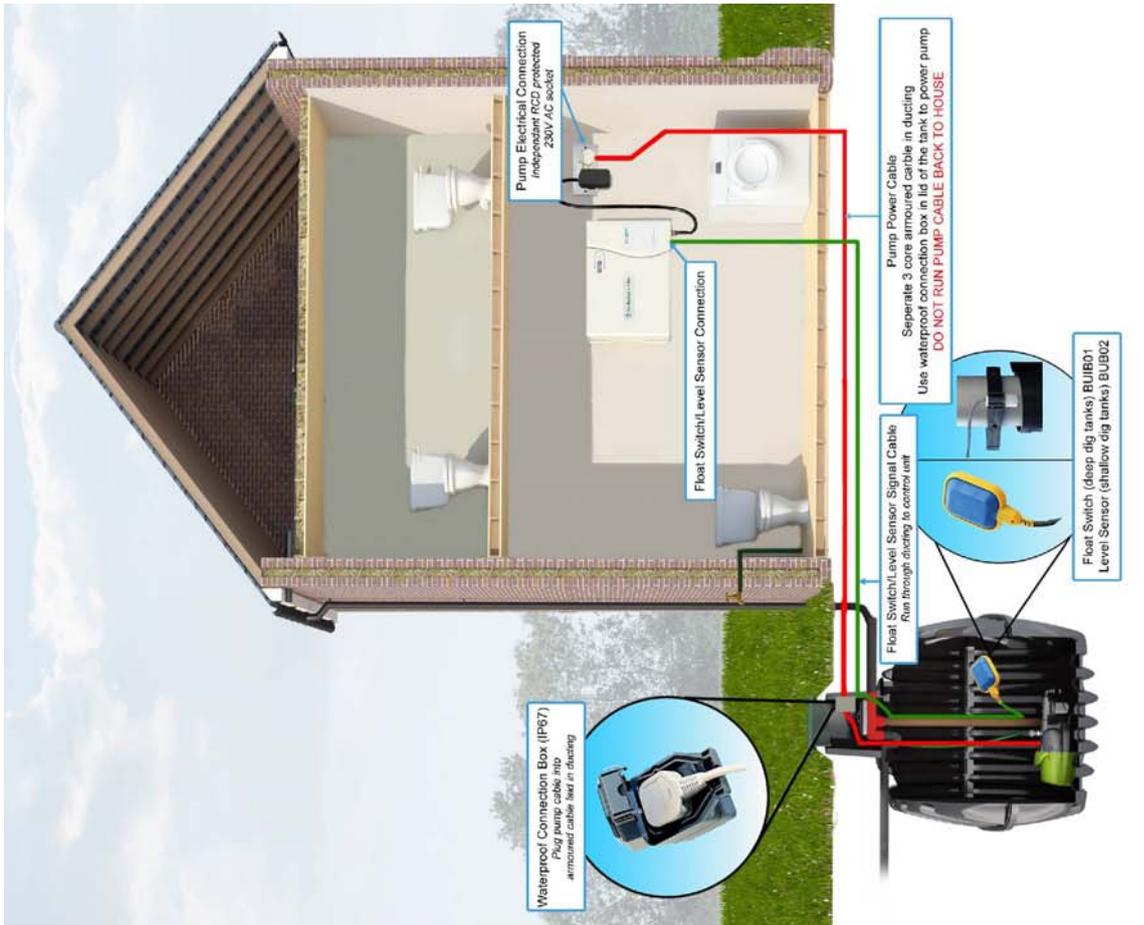
- 1) Locate the best position for the **Rain Backup in a Box**<sup>®</sup> unit.
  - a. Inside the building where the occupiers can see and hear it.
  - b. Within a metre of a 220v AC wall socket into which to connect the plug.
  - c. Accessible to a mains water pipe.
  - d. Above the top of the underground storage tank so that the backup mains water flows by gravity.



- 2) Mount the unit securely to the wall and pipe the mains water to the inlet at the bottom right of the unit using 15mm pushfit or copper pipework.
- 3) Pipe the outlet of the tundish using 21.5mm waste pipe from the bottom left of the unit to the rainwater storage tank. **The first 300mm must be straight**; any angle close to the unit risks the water backing up and flowing back out of the tundish. In most installations this outlet can be channelled to the closest possible rainwater downpipe from the roof. This backup water supply does not have to be piped separately to the storage tank.
- 4) The overflow pipe (middle) of the Rain Backup in a Box should flow to the exterior through a pipe which offers no constriction. It is designed to avoid flooding of the house if the pipe from the tundish to the underground tank is blocked up, and to provide a visual alert to the building occupants. Run the overflow to the exterior of the building to discharge over the ground or gully or connect to an adjacent rainwater down pipe.
- 5) Channel the float switch cable to the underground storage tank. Typically this is through a service pipe made of 4 inch (110 mm) plastic which also carries (i) the mains electricity supply to the submerged pump the return pipe carrying rainwater from the storage tank back to the appliances in the house.

- 6) Attach the wire of the float switch, at a point about **25 mm** away from the body (plastic section) of the float switch, with a nylon tie wrap to a suitable point (around 30-50cm) from the base of the storage tank. The 110mm downpipe from the filter to the calmed inlet on the floor of the tank is the best securing point.
- 7) **The float switch should be positioned so that, at its lowest level, hanging down, the water level is not below the pump inlet. So, ensure that the water level at which the mains backup cuts in is above the level from which the pump draws water; this then avoids the pump sucking air and stopping.**
- 8) Connect the unit's 12 volt DC adapter to a 220V AC mains socket. Power should be maintained to the unit at all times.
- 9) The installation is finished. Some mains water will continue to flow into the storage tank until the float switch rises.
- 10) Note that the rate of refill of the rainwater tank with mains water by this product is typically slower than the water flow out of the submersible pump. If you are watering the garden and the rainwater tank runs low it is possible that the pump will shut down due to absence of water, even if the backup mains is flowing.





## Wiring of the solenoid: Rain Backup in a Box<sup>®</sup>

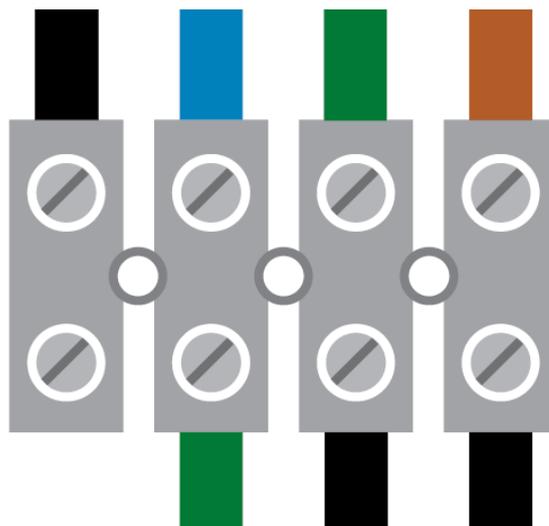
### 12 volt charger and float switch

In the event any wire has to be detached from the Rain Backup in a Box, for example when pulling the float switch wire through a service pipe, we show here the wiring for the 4 pole connector strip inside the box under the coloured logo.

Notes:

The polarity of the solenoid (green) and charger (black) connections is not critical. The black from the float switch is not used in this application.

From:	1	2	3	4
Float Switch	Black	Blue		Brown
Solenoid		Green	Green	
12v Wall Charger			Black	Black



Further installation guidance can be found online at: [www.rainwaterharvesting.co.uk/troubleshooting.php](http://www.rainwaterharvesting.co.uk/troubleshooting.php)

The **Rain Backup in a Box<sup>®</sup>** is reliant on a constant power supply, as such we recommend at least one WC on mains at install to prevent disruption in the event of power failure.

Please follow the instructions provided carefully. Not doing so could cause damage to the unit and invalidate the warranty. If you have questions or require assistance please contact one of our technical team:

Telephone: 01733 405 100

Email: [info@rainwaterharvesting.co.uk](mailto:info@rainwaterharvesting.co.uk)